Fungal Diversity Adds Value to Biotecnology and Agriculture

Georgios I. Zervakis

National Agricultural Research Foundation, Institute of Kalamata, Greece

Mediterranean countries host rich biological diversity (genetic, population, species, habitats, communities, ecosystems). Until recently research on the fungal diversity was focusing relatively more on phytopathogenic fungi, invertebrate parasites, and saprotrophic and ectomycorrhizal mushrooms (Pezizales, higher Basidiomycetes). For higher Basidiomycetes in particular, detailed inventories and check-lists have been compiled in many western European countries. In the Mediterranean region, however, pertinent data are limited and fragmentary; only recently new information has started to accumulate. Indicative is the case of Greece, where selected ecosystems are studied in respect to their macromycetes diversity, revealing the existence of taxa with significant ecological and economic interest. Prerequisites for the exploitation of biological resources (incl. fungi) is the availability of a large number of individuals with a wide genetic basis, which are correctly identified and suitably evaluated. For example, elucidating taxonomy and clarifying phylogenetic relationships among *Pleurotus* species has contributed significantly to their widespread use. Large-scale applications related directly (or indirectly) with mushroom resources and their exploitation include the edible mushroom industry, production of medicinal and health-promoting factors, improvement of soil fertility, remediation of soils, enhanced plant growth, suppressiveness of soil-borne pathogens of plants, animal feed, transformation of xenobiotics and antibiotics, biosorption of toxic elements, decolorization of organic pollutants, degradation of industrial and agroforestry wastes, etc. Particular emphasis is given to the upgrade of lignocellulosic wastes and residues through their detoxification and biotransformation into value-added products; among them, soil conditioners and fertilizers generated from spent mushroom substrates conform with the much-sought notion of sustainability in agriculture.

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